

Serial Number 09/548,912

PATENT
IBM Docket No. RAL9-00-0017**Amendments to the Claims:**

1. (Canceled)

2. (Currently Amended) A method of selecting during any processing cycle one processed information unit from a plurality of information units ready at that time for transmission from a network processor toward a data transmission network, the method comprising ~~the steps of~~:

receiving priority information about each of the information units ready for processing;

placing each information unit ready for transmission into one of several prioritized ~~queues~~ calendars based on the priority information associated with each processing unit, one of the ~~queues~~ calendars being time-based and an other one of the ~~queues~~ calendars being time independent;

selecting one of the ~~queues~~ calendars to service at each time cycle based on a stored set of rules and selecting one of the information units from the selected ~~queue~~ calendar according to an algorithm, said selection from a weighted fair ~~queue~~ calendar including calculating a new position in the weighted fair ~~queue~~ calendar based on the size of the packet and the weighting factor for the information unit selected; and

sending the selected information unit ~~from~~ to the network.

3. (Currently Amended) [[A]] ~~The method including the steps of according to Claim 2 wherein the step of further including providing a back pressure indicator signal to said weighted fair calendar when an the output queue for a given queue associated with said weighted fair calendar is not empty, preventing that output queue from being selected during the time cycle interval.~~

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4. (New) Apparatus for routing packets in a communications network comprising:
a plurality of queues in which information unit ready for transmission is being stored;
at least one time-based calendar being operable to select a queue from which a packet is to be transmitted in order to sustain a predefined bandwidth;
at least one time independent calendar having spaced slots whereat queue pointers identifying queues containing information units to be transmitted are being stored; and
a current pointer, associated with the non-time-based calendar, advancing at predefined time interval to select a slot whereat a queue being identified by one of said queue pointers is selected and an information unit is transmitted from the queue to an output destination.
5. (New) The apparatus of claim 4 further including a processing unit responsive to a signal from the selected slot to identify a new slot whereat the identified queue is being placed for subsequent service.
6. (New) The apparatus of claim 5 wherein the new location is calculated based upon the selected queue weighting factor and size of the transmitted information unit.
7. (New) The apparatus of claim 4 further including a back pressure controller monitoring the output distinction and inhibiting the time independent calendar from transmitting the information unit.
8. (New) The apparatus of claim 7 wherein the back pressure controller includes at least one port queue and a threshold that limits the amount of information unit to be accommodated in said queue.

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9. (New) The apparatus of claim 8 wherein the amount of information unit is being determined based upon the transmission rate of a network to which information unit from said at least one port queue is to be transmitted.

10. (New) The apparatus of claim 1 wherein a common set of queues are being serviced by the at least one time-based calendar and the at least one time independent calendar to provide best effort bandwidth and minimum bandwidth scheduling.

11. (New) An apparatus comprising:

at least one time independent calendar partitioned into multiple positions wherein each position represents a predefined unit of bandwidth and associated with stored information including information pointers pointing to information sources;

a current pointer that advances from one position to a next in response to control signals; and

a controller responsive to signals from a first position whereat the current pointer is aligned to identify a second position whereat an information pointer is placed for future servicing after being detached from the first position.

12. (New) The apparatus of claim 11 wherein the second position is determined based upon a weighting factor assigned to an information source and length of an information unit transmitted from said information source.

13. (New) The apparatus of claim 11 wherein if an information source is present at a position to which the information pointer points an information unit is transferred from the information source to an output destination.

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14. (New) The apparatus of claim 13 wherein the information source includes flow queues.

15. (New) The apparatus of claim 13 wherein the output destination includes port queues.

16. (New) The apparatus of claim 15 further including a threshold signal generated when port queues exceed a predefined threshold and is used by said time independent calendar to temporarily cease transmitting information units from flow queue to target port queues.

17. (New) A method to route information units in a communications network comprising:
providing at least one calendar partitioned into a plurality of locations wherein each location represents a predefined unit of bandwidth and adapted to store pointers identifying queues with information units ready for transmission;

selecting one of the locations by advancing a current pointer relative to the calendar at predefined time intervals;

examining the one of the locations;

transmitting an information unit from a queue having a pointer at said one of the locations to the network;

detaching the pointer from its current location; and

attaching said pointer to another location based upon an algorithm.

18. (New) The method of claim 17 wherein the algorithm includes calculation of a distance based on queue weight assigned to the queue and number of bytes transmitted.